

It is claimed:

1. A method of calculating a system organization parameter for a wireless communication system, the method comprising:

5 intermittently measuring a path-loss related characteristic between a base station and one or more wireless terminals of the wireless communication system in substantial absence of correlation to an absolute geographic location regarding where the path-loss characteristic measurement occurs thereby forming a measured path-loss characteristic measurement;

10 determining a signal propagation characterization that relates the measured path-loss characteristic measurement to the base station and the geographic location of the one or more wireless terminals; and

altering the system organization parameter for the wireless communication system based on the signal propagation characterization.

5 2. The method of claim 1 wherein altering includes adjusting the system organization parameter for the wireless communication system.

3. The method of claim 1 further comprising establishing communication between the base station and the one or more wireless terminals based on the system organization parameter that has been determined.

4. The method of claim 1 wherein the path-loss related characteristic is a measurement of signal propagation.

25 5. The method of claim 1 wherein the path-loss related characteristic is at least partially dependent on one of path-loss, bit error rate, word error rate, frame error rate and received signal strength of a signal transmitted at a known power level.

30 6. The method of claim 1 wherein the path-loss related characteristic is dependent on measurements taken over a period of time.

7. The method of claim 1 wherein measuring further comprises determining received strength of a signal at the wireless terminal corresponding to a signal transmitted by the base station.

8. The method of claim 1 wherein the wireless communication system further comprises a plurality of base stations.

9. The method of claim 8 wherein the system organization parameter is a neighbor list, a list of base stations that can reuse channels, a wireless terminal access parameter, a wireless terminal transmission power setting, or a base station transmission power setting.

10. The method of claim 8 wherein the plurality of base stations provide service to respective areas creating a respective service area for each base station, and wherein the system organization parameter identifies an overlap zone where the service area of one base station overlaps the service area of another base station.

11. The method of claim 8 further comprising:

determining an isolation value for a first of the plurality of base stations based on up-link interference caused by an interfering wireless terminal in a coverage area not serviced by the first base station; and

determining the system organization parameter based on the isolation value.

12. The method of claim 11 wherein the isolation value for the first of the plurality of base station is dependent on measurements corresponding to the interfering wireless terminal.

13. The method of claim 12 wherein the isolation value for the first of the plurality of base stations is further dependent on measurements corresponding to a wireless terminal in a coverage area serviced by the first base station of the plurality of base stations.

14. The method of claim 12 wherein the isolation value is dependent on measurements corresponding to a plurality of interfering wireless terminals in a coverage area serviced by a second base station of the plurality of base stations.

15. The method of claim 12 wherein the system organization parameter relates respectively to channels useable by the plurality of base stations.

16. The method of claim 12 wherein the system organization parameter identifies a neighbor base station that is operable to receive a communication hand-off from a particular base station.

17. The method of claim 12 wherein the isolation value is dependent on a value for an up-link carrier-to-interference ratio.

18. The method of claim 8 further comprising determining a first isolation value for a first coverage area of a first base station of the plurality of base stations based on down-link interference caused by a second base station of the plurality of base stations.

19. The method of claim 18 wherein the system organization parameter relates to channels useable by at least one of the plurality of base stations.

20. The method of claim 18 wherein the system organization parameter identifies a neighbor base station that is operable to receive a communication hand-off from a particular base station.

21. The method of claim 18 wherein the first isolation value is dependent on a value for a down-link carrier-to-interference ratio.

22. The method of claim 18 further comprising determining a second isolation value for the first base station based on up-link interference caused by an interfering wireless terminal in a second coverage area serviced by the second base station, the second isolation value dependent on the path loss-related characteristic measured between the interfering wireless terminal, and wherein

the system organization parameter depends on the first isolation value and the second isolation value.

23. The method of claim 22 wherein the first isolation value and the second isolation value are further dependent on measurements corresponding to a wireless terminal in the first coverage area serviced by the first base station.

24. The method of claim 22 wherein the first isolation value and the second isolation value are dependent on a value for an up-link carrier-to-interference ratio.

25. The method of claim 1 wherein the system organization parameter is a transmission power setting for the base station.

26. The method of claim 25 wherein the transmission power setting is determined upon an addition of a base station to the wireless communication system or upon a deactivation of a base station in the wireless communication system.

27. In a wireless communication system having one or more base stations that serves a geographic service area, a method for establishing communication over at least one channel between the one or more wireless terminals and the one or more base stations utilizing a system organization parameter determined according to a method comprising:

intermittently measuring a path-loss related characteristic between the one or more wireless terminals and the one or more base stations in substantial absence of correlation to an absolute geographic location regarding where the path-loss related characteristic measurements are taken, the one or more wireless terminals positioned at one or more locations within the geographic service area;

establishing a characterization of signal propagation for signals generated within the geographic service area based on the measured path-loss related characteristic relating the measured path-loss characteristic between the one or more base stations and the geographic locations of the one or more wireless terminals; and

altering the system organization parameter based on the characterization of signal propagation, wherein the system organization parameter includes a transmission power setting for the one or more base stations.

28. A method for determining at least one system organization parameter for a wireless communication system having at least one base station arranged to serve at least one wireless terminal in a geographic area, the method comprising:

intermittently measuring a path-loss related characteristic between a plurality of locations for wireless terminals and the base station thereby creating a measured path-loss related characteristic, wherein the measuring is performed in substantial absence of correlation to an absolute geographic location regarding where the measurements were taken;

establishing a characterization of signal propagation for signals generated within the geographic area based on the measured path-loss related characteristics; and

adjusting at least one system organization parameter based on the characterization of signal propagation.

29. A method of calculating a system organization parameter for a wireless communication system, the method comprising:

receiving a data packet from a wireless terminal at a plurality of base stations;

intermittently measuring and storing a path-loss related characteristic for the data packet received at each of the plurality of base stations thereby creating a measured path-loss related characteristic and a stored path-loss related characteristic respectively, wherein the measuring is performed in substantial absence of correlation to an absolute geographic location, the path-loss related characteristics stored in a form relating the measured path-loss characteristic between the wireless terminal and the plurality of base stations;

altering the system organization parameter from the stored path-loss related characteristics in substantial absence of correlation to the absolute geographic location regarding where the measuring was performed, wherein altering the system organization parameter includes adjusting a base station transmission power setting; and

operating the wireless communication system in accord with the system organization parameter.

30. The method of claim 29 further comprising:

receiving a plurality of data packets approximately simultaneously so that the location of the wireless terminal remains approximately unchanged between receipt of the plurality of data packets; and

wherein measuring and storing includes correlating each received data packet with each other received data packet.

31. A method of claim 30 further comprising repeating the step of receiving and the step of measuring and storing with the wireless terminal at a plurality of locations in an aggregate service area of the plurality of base stations so as to create a table relating the path loss related characteristic of the plurality of base stations to the plurality of locations, the number of the plurality of locations being greater than the number of base stations.

32. A method of claim 29 wherein the path loss related characteristic is a measurement of signal strength for received data packets, a characterization of path losses for received data packets, a measurement of signal propagation, or an isolation value.

33. The method of claim 29 wherein the path-loss related characteristic is at least partially dependent on one of path loss, bit error rate, word error rate, frame error rate, and received signal strength of a signal transmitted at a known power level.

34. The method of claim 29 wherein the system organization parameter is a neighbor list, a list of base stations that can reuse channels, a wireless terminal access parameter, a wireless terminal transmission power setting, a base station transmission power setting, or an identification of overlap of service areas.